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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,066	04/12/2007	Geoffrey Brent	20996-002US1 12528200/200	1430
26161 7590 05/18/2012 FISH & RICHARDSON P.C. (BO) P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			EXAMINER KLEIN, GABRIEL J	
			ART UNIT 3641	PAPER NUMBER
			NOTIFICATION DATE 05/18/2012	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary	Application No. 10/596,066	Applicant(s) BRENT ET AL.	
	Examiner GABRIEL KLEIN	Art Unit 3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 February 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1-36 and 69-71 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1-36 and 69-71 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-36 and 69-71 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In reference to claims 1 and 69-71, the metes and bound of the terms "stand-up blast" and "throw blast" are unclear. Specifically, it is unclear how a person of ordinary skill in the art would know if a blast constitutes a "throw blast" or a "stand-up blast" based upon Applicant's disclosure and the general knowledge in the art at large.

Applicant's specification states that a "stand-up blast" is a blast in which "very little, if any, of the first body of material is thrown clear of the blast field" (spec, page 6, lines 20-29). Further, Applicant states that a "throw blast" is a blast in which a certain percentage of material is thrown clear of the blast field (spec, page 6, lines 20-29).

However, Applicant does not provide any description of how much material may be thrown clear of the blast field by a "stand-up blast", and does not make clear the boundary between a "stand-up blast" and a "throw blast". Is a blast that throws 3% of the blasted material clear of the blast field a "stand-up blast" or a "throw blast"? Further, it is noted that those of ordinary skill in the art consider the terms "throw blast" and "stand-up blast" to be relative terms that may only be defined with respect to a specific

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set of conditions including the geometry of the blast field, the type material to be blasted, the type of explosive employed, the desired outcome, and numerous other factors. In other words, there are no art recognized, definitive limits to the terms "stand-up blast" and "throw blast". Thus, it would not be clear to a person of ordinary skill in the art when a blast design would infringe upon Applicant's claims, since the terms "stand-up blast" and "throw blast" are indefinite. For purposes of examination, the term "throw blast" will be considered to encompass any blast that is intended to throw material clear of the blast field. Also, for purposes of examination, the term "stand-up blast" will be considered to encompass any blast that is intended to prevent lateral movement of blasted material clear of the blast field.

In reference to claims 8-9 and 14-15, the limitation reading "a relatively small deck of explosives" is indefinite. What deck sizes are covered by and precluded by this limitation? For purposes of examination, any deck size will be considered to meet this limitation.

In reference to claims 22, 24, and 27, it is unclear whether the language found in parentheses is intended to positively limit the claims. It is strongly suggested that Applicant remove the parentheses if Applicant intends for this language to limit the claims. For purposes of examination, the examiner will not consider the language within the parentheses.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

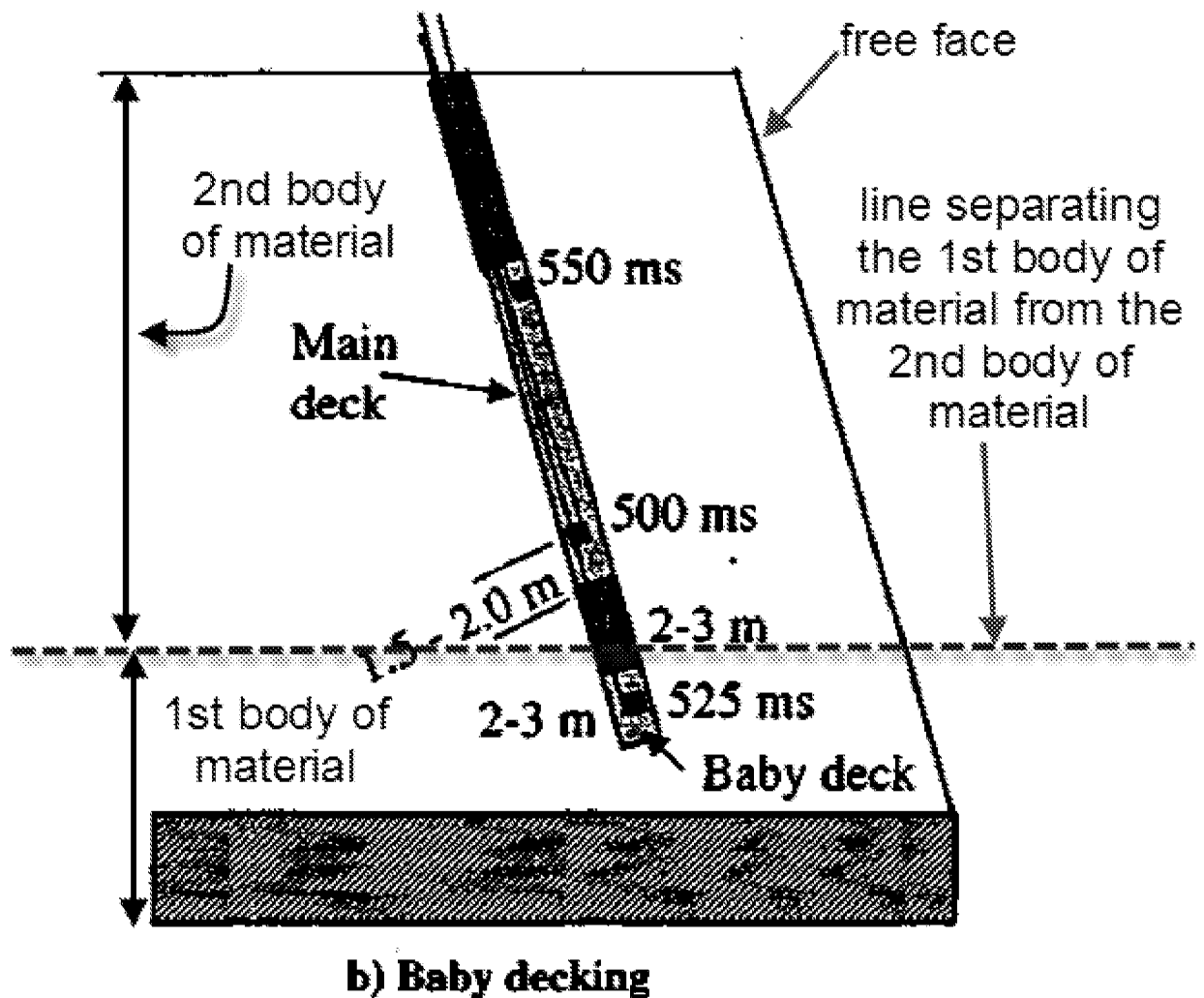
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10, 28-29, 31, 35-36, and 70-71 are rejected under 35 U.S.C. 102(b) as being anticipated by ACARP PROJECT C5005 (February 1999; listed on the IDS submitted January 27, 2010).

In reference to claims 1, 70, and 71, ACARP discloses a method of blasting plural layers of material in a blast field including a first body of material comprising at least a first layer of material and a second body of material comprising at least a second layer of material over the first body of material, the blast field having at least one free face at the level of the second body of material, the method comprising drilling blastholes in the blast field through the second body of material and, for at least some of the blastholes, at least into the first body of material (page 23 and figure 3.1 and marked-up figure 3.3 below), , loading the blastholes with explosives so that for at least some of the blastholes a respective deck of explosive is provided in each of the first and second bodies of material (figure 3.3, the main deck of explosive provided in the 2nd body of material and the baby deck of explosive provided in the first body of material) and then firing the explosives in the blastholes in a single cycle of drilling, loading and blasting at least the first and second bodies of material, wherein the first body of material is subjected to a stand-up blast in said single cycle and said second body of material is subjected to a throw blast in said single cycle whereby at least a substantial part of the second body of material is thrown clear of the blast field beyond the position of said at least one free face (see Warkworth Field Study, pages 22-37; also see

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marked-up figures below). It should be appreciated that the firing of the main deck of explosive constitutes a throw blast since it is intended to throw a portion of the 2nd body of material clear of the blast field. Further, the subsequent firing of the baby deck of explosive constitutes a stand-up blast since it is intended to minimize lateral movement of the 1st body of material in order to minimize shear stress on the coal seam, coal edge movement, and loss (see pages 24-25, 30-32, and 35-36). In reference to claim 70, it is clear that the first body of material comprises a layer or recoverable mineral (coal). In reference to claim 71, it should be appreciated that the first body of material may be considered to include the interburden below the coal seam illustrated in figure 3.3 (see page 25, section 3.2.1, and figure 3.2, which make clear that there is a layer of interburden below topmost coal seam 16).



In reference to claim 2, ACARP discloses the claimed invention as set forth above.

In reference to claims 3-5, ACARP discloses the claimed invention (page 32, Table 3.1, Cast %).

In reference to claims 6-9, ACARP discloses the claimed invention as set forth above.

In reference to claim 10, ACARP discloses the claimed invention (see page 25, section 3.2.1, and figure 3.2, which make clear that there is a layer of interburden below topmost coal seam 16 and above the next coal seam).

In reference to claims 28-29 and 35, ACARP discloses the claimed invention as set forth above.

In reference to claims 31 and 36, ACARP discloses the claimed invention (the main deck includes a back-up primer set at 550 ms, which would initiate the main deck after the baby deck in the event that the 500 ms primer failed). Thus, any two holes in a row may be subjected to a blast in the first body of material having a different delay to the blast in the second body of material.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16-17 is rejected under 35 U.S.C. 103(a) as being unpatentable over ACARP. ACARP discloses the claimed invention except for wherein the blast field includes blastholes that do not extend into the first body of material. However, the examiner takes Official Notice that it is well known for a blast field to include shallow stab holes at a rear thereof (remote from the free face) in order to achieve an angled back wall. Thus, it would have been obvious to a person of ordinary skill in the art to provide the blastfield of ACARP with shallow stab holes not extending into the first body

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of material in order to achieve an angled back wall. In reference to claim 17, ACARP teaches the claimed invention.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over ACARP in view of Mandal (Indicated as reference AJ on the IDS submitted June 19, 2008). ACARP discloses the claimed invention except for the third body of material and subjecting this third body of material to a throw blast of different design than the throw blast that the second body of material is subjected to. However, Mandal teaches that it is known for there to sometimes exist a third layer of material in between material layers such as those of ACARP, the third layer constituted by a thin seam of recoverable material. Further, Mandal teaches that it is known to design a blast that includes differential throw blasts so as to throw the third layer of material further than the second layer above said third layer (pgs A69-A71). Thus, it would have been obvious to a person of ordinary skill in the art to design the main deck of the ACARP to achieve differential throw blasts in the second layer and an underlying third layer in order to allow for recovery of the third layer by throwing the material of the third layer further than that of the second layer.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over ACARP. ACARP discloses the claimed invention except does not explicitly teach that the first body of material is buffered in the direction of throw defined by the throw blast. However, the examiner takes Official Notice that it is well known to buffer the free face

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of a blast field at least up to the top surface of a coal seam in order to prevent coal edge losses during a throw blast. Thus, it would have been obvious to a person of ordinary skill in the art to buffer the first material as claimed in order to further prevent coal edge losses during a throw blast involving a baby-decking design.

Claims 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over ACARP.

In reference to claims 24 and 27, ACARP discloses the claimed invention except for wherein the explosives in the first and second bodies of material are initiated back to front. ACARP remains silent as to which direction the explosives are initiated. However, it should be appreciated that there exists a finite number of directions in which the explosives may be initiated (front to back, back to front, left to right, etc.). Further, it is within the knowledge of a person of ordinary skill in the art that it is known to fire rows of blast holes back to front. Thus, it would have been obvious to a person of ordinary skill in the art to fire the initiate the explosives in the back rows prior to those in the front since it is within the level of ordinary skill in the art to choose from a finite number of initiation directions the direction which will best suit a particular set of conditions.

In reference to claims 25 and 26, ACARP teaches the claimed invention except for wherein the initiation point is remote from the edges of the blast field and wherein the blast proceeds in multiple directions from the initiation point. However, it should be appreciated that there are a finite number of initiation points in the blast field (i.e. a finite number of blast holes) and that it is within the knowledge of a person having ordinary

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skill in the art to select a particular blast hole as the initiation point. Considering the finite number of possibilities, it would have been at least obvious to try to initiate the explosives from a blast hole at the interior of the blast field. Further, the examiner takes Official Notice that it is well known for a blast design to include propagation in multiple directions in order to achieve a desired outcome. Thus, it would have been obvious to a person of ordinary skill in the art to design the initiation and propagation of the blast such that initiation takes place at an interior blast hole and propagates in at least two directions outwardly therefrom in order to achieve a desired outcome under a specific set of conditions.

Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over ACARP. ACARP discloses the claimed invention except for the use of an electronic delay system. However, the examiner takes Official Notice that electronic delay systems are known to be used to set delays for blasting in lieu of pyrotechnic delays, and it is known that electronic delays may be set more precisely than pyrotechnic delays. Thus, it would have been obvious to a person of ordinary skill in the art to use an electronic delay system to control the timing of the blast in the ACARP blast design, in lieu of pyrotechnic delays, since electronic delay systems may be set more precisely than pyrotechnic delays.

Claim 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over ACARP. ACARP discloses the claimed invention except for gamma ray logging as

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claimed. However, the examiner takes Official Notice that it is well known to perform gamma ray logging of drilled blastholes prior to loading of explosive and blasting in order to determine and record the various strata of material present in the holes to aid in the design of the blast. Thus, it would have been obvious to a person of ordinary skill in the art to perform such gamma ray logging prior to loading and blasting in order to determine the various strata of material located down hole.

Allowable Subject Matter

Claim 69 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Claims 11-15, 20-23, and 30 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GABRIEL KLEIN whose telephone number is (571)272-8229. The examiner can normally be reached on Monday through Friday 11:00 am to 7:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 571-272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gabriel J Klein/
Primary Examiner, Art Unit 3641

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